

Information Technology: A facilitator for Knowledge Management in an Educational Setup

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Abstract

Organizations, today, are operating in a VUCA environment including the education sector. With so difficult operating conditions, organizations are left with no option but to assimilate new knowledge continuously to keep pace with an ever changing operating environment. Knowledge Management now-a-days has gained a lot of importance in dealing with this uncertainty and its management has become a major concern for the business. In education sector conditions are no different than any other sector; there is a constant quest for knowledge. Appropriate / inappropriate assimilation and dissemination of information can make or break the institute thus the need of knowledge management is more in an educational institute in comparison to any other industrial sector. Information Technology has been identified as an important tool for the purpose of knowledge management. This paper is an attempt to find out the application of Information Technology in education sector for the purpose of Knowledge Management.

Key Words: Information Technology, Knowledge Management, Survival, Tool, Uncertainty

1. Introduction

Now a day's Knowledge Management is a buzzword in the industry [1] and can be defined as a process of making right knowledge available at the right time to the right people. For leveraging competitive advantage and reaping benefits, organizations need to coordinate and exploit its knowledge resource to the fullest extent. It is the management of knowledge in the organization which decides its level of competitiveness. It is not only the knowledge intensive organizations which are using Knowledge Management to leverage competitive advantage but also it has spread its wings to all the sectors of the economy [2]. Knowledge Management helps traditional industries also in reaping benefits by its implementation [3]. Sustainability is a big issue for today's organizations and to sustain they need to be vigilant for the changes taking place in the environment both at micro and macro levels. Operating in this kind of an environment requires new approaches and attitude towards the work and knowledge management plays a vital role in it. Organizations making use of knowledge management will definitely have an edge over those who are lagging behind [4]. Organizations which are found performing better and innovatively are those who are able to effectively manage and transfer knowledge [5]. In today's economic environment it is the management of knowledge which will make the difference thus making Knowledge Management critical to the organizational effectiveness and performance.

Knowledge can be defined in two different ways, first defines it as a body of information which might consist of theories, facts, opinions, ideas and principles, and second defines it as a person's state of being with respect to any body of information. Studies have indicated that growth of knowledge work increases the proportion of knowledge workers in the workforce. This results in increased productivity of the knowledge workers which is an important factor affecting economic growth of the organization [6]. One of the most vital resources for an organization today is Knowledge and it not only provides them a cutting edge over the competitors but also helps in growing. However a fact to be kept in mind is that the knowledge is perishable. Life of knowledge gained is limited because of the continuous emergence of new technologies, products, and services and with time old assimilated knowledge becomes irrelevant. Therefore organizations need to constantly thrive for the assimilation of new and replenishment of old knowledge. This poses a big problem for the organization and the best solution to resolve it is the application of information technology in the management of knowledge.

Knowledge management helps the organization in understanding the processes and structure to create, capture analyze and act on information. There is confusion among people in differentiating Information Management and Knowledge Management. Information Systems are designed to handle

the operation and management of the organization, while Knowledge Management Systems provides them unknown or unseen pieces of information to create insights that helps the user in a specific context. Latest advancement in the field of information technology has changed the way the knowledge management activities are performed now [7]. Expert system, knowledge repositories are the few which one can name. Implementation of Intranet and extranet in an organizations enables speedier internal communication, reduced costs of printing and have provided a new way of collaborating such as virtual teams [8]. Knowledge Management strategy needs to be in synchronization with the competitive strategy of the organization [9] and for this organization had to have the appropriate IT infrastructure [10]. IT infrastructure facilitates information management but the organization needs to go beyond information management and develop the Knowledge Management System which will facilitate the identification, creation transformation and distribution of knowledge [11, 12]. Knowledge management System plays a significant role in assimilating knowledge from all the sources of the organization and ensures that everyone in the organization is aware of its availability [13].

Numerous previous studies have analyzed the various dimensions of the knowledge Management. A comparison of following dimensions process, leadership, culture, measurement etc., was studied across Indian manufacturing, IT and IT enabled Services (ITES)[14]. Another study focuses on how the knowledge management practice can improve organizational effectiveness and impact of corporate culture on the KM implementation [15]. An exploratory study was conducted for assessing the Knowledge Management practices in Indian software development companies which revealed the importance of technological infrastructure, cultural requirement and management of knowledge assets as some important aspect for developing effective Knowledge Management systems [16]. Ethical issues in knowledge management were explored in a study by Rechberg [17]. Carmel (2013) studied the impact of loss in knowledge when the old employees leave the knowledge-intensive organizations [18]. A distinction in tacit-explicit knowledge was explored by Lesley [19]. How customer knowledge management assist in continuous innovation and firm performance in private banks was studied by Nastaran [20]. Matsuo (2015) did the research on how HRD programs helps in transfer and creation of knowledge [21]. Social media has its affect on the organizational knowledge quality [22]. Knowledge Management and its impact on organizational culture was explored by cornfield [23]. Studies have proved that the organizations working in an environment embedded with the knowledge management processes leads to the job satisfaction among the employees [24]. A model for Big Data/Analytics and Knowledge Management was proposed in a study which found the crucial importance of knowledge as the main principle in Big Data/Analytics [25]. A study on Knowledge transfer from b. schools to business organizations was conducted which apart from several outcomes found that learning motivation has a positive

effect on acquired knowledge and knowledge transfer [26]. Numbers of studies about the application of knowledge management in diversified subjects and areas have been conducted, However researcher found a few studies which focuses on the application of information technology for knowledge management in an educational setup. Hence it was decided to conduct a study in an educational setup.

With privatization of higher education, continuous onslaught by the premium educational institute of national and international reputation, increased awareness among the students about the quality of the institute, university and courses offered by them, retention of good faculty member, developing a research aptitude among the faculties, unwillingness of faculty member in sharing knowledge, increased information need of faculty and other staff, becoming cost effective, restricted budgetary provisions for faculties for attending FDP's workshop conferences, making administrative staff more responsive towards the need of the student and faculty, automation of library, examination and other administrative activities, placements, social media presence, all of these issues have made need of knowledge management imperative in an educational setup in comparison to any other sector as the existence of this sector is based purely on the knowledge management in its processes.

Knowledge Management in an educational setup thrives to draw out the tacit knowledge which is with the faculties of the institution, which they knowingly unknowingly carry with them. Considerable efforts in the form of time and money are invested on the development of the academic fraternity by an institute and it is quite common that they leave the institution for a better prospect or for any other reason taking away the learning and tactic knowledge with them. Thus essentially efforts should be made by an institute to retain the knowledge and this can only be achieved by knowledge management. Literature review undoubtedly proves that conversion of tactic knowledge into the explicit knowledge is a difficult task; here comes the role of information technology. Information technology facilitates the conversion, codification of the tactic knowledge into the explicit knowledge and also takes care of its retention on a permanent basis. Database Management Systems, Word processors, Expert systems, Knowledge Management Systems are few which are very useful for this task. Intranet, Whatsapp, Facebook are the socializing tools which also contribute in this process of conversion.

Regardless of the reasons, the management institutions are faced with rapid change and increased call for more effective use of knowledge and resources. Developing an online model that allows for the successful adoption of a KM system can be critical to the success of any management institution.

Literature Review:

Knowledge Management has become a focal point for the businesses today and has gained a lot of attention of top management because of its ability to reduce the level of uncertainty, which result is an effective decision making leading to stability, increased profitability, competitiveness, in an organization [27]. Knowledge Management is been defined differently. It is a “Systematic process of capturing and communicating knowledge people can use” [28]. Knowledge Management is like creating a library which not only provides a depository for information on the various functional aspect of organization but also tries to make available the knowledge which is their in the peoples mind.

Knowledge Management makes the precise knowledge available to the right people at the right time which improves organizational performance [29]. It is a key driver for organizational performance [30]. Knowledge Management helps in identifying and analyzing the available and required knowledge resources. It assists in improved decision making by using and sharing of data and information [31]. The attention which Knowledge Management has got is attributed essentially to the environmental factors such as increased global competition, speed at which information and knowledge is becoming obsolete, changing dynamics market etc [32].

Knowledge Management ensures that the knowledge related assets of organizations are improved and effectively employed by the proper planning and controlling of people, processes and systems in the organization [33]. It creates, share, uses and manages the knowledge and information in an organization [34]. Organizations today regard knowledge as a vital asset for competitive advantage and are paying attention to its exploration [35].

Knowledge Management is a necessary component for organizations to maintain its competitiveness so it is essential for management to consider it as a prerequisite for higher productivity and flexibility both in private and public sectors [36]. Improved access to appropriate contextual knowledge by an employee reduces the response time results not only in enhanced customer satisfaction but also reduces the customer support cost by 25 percent or more [37]. It is considered as one of the most important strategic technologies for large companies [38]. As working environment has become more complex and reliable information is readily available for the purpose of decision making, need for its management has arise. Information Technology plays a vital role in knowledge Management and for this organizations need to have the appropriate IT infrastructure for implementing Knowledge Management strategy [39].

Technological solutions for the management of knowledge are available today, thanks to the advancement in Information and communication technology. But the point is can technology alone provide all the solutions for managing knowledge, and the reply is no. It is only possible when people

are ready to share their knowledge. Thus Knowledge Management makes use of information technology to produce value from organizational intellectual and knowledge base assets. Information and Knowledge are often taken as a synonym but there exist a thin line of demarcation between them [40]. Information relates to “what, who, when, where”, while knowledge comprises of “How”. Thus information is to be converted into knowledge and for this first there is a need to understand the different approaches of knowledge management [41]: Tacit Knowledge Management, Explicit Knowledge Management and Blended Knowledge Management. It was Michael Polanyi who first coined the word tacit knowledge and defined it as "we can know more than we can tell". Tacit knowledge is difficult to transfer, difficult to fully codify, highly personal and people are not even aware that they have it. It is highly context specific and is deep rooted in individual experiences, ideas, values and emotions [42]. Tacit knowledge is experience-based knowledge embodied in people and cannot be fully codified [43]. Tacit knowledge is behind the organizational innovations and sustained competitive advantage [44]. Sharing of tacit knowledge needs close interaction, trust and knowing subject. It is instrumental for the survival of an organization but depends on how willing the human intellect is for sharing it and knowing that they actually have it.

It is not difficult to identify, store, and retrieve Explicit Knowledge [45]. It can be transferred easily without the subject knowledge. Knowledge Management Systems are capable of handling explicit knowledge as they are very effective in facilitating the storage, retrieval, and modification of documents and texts. Logical inferences and practical experience helps in the generation of explicit knowledge. Coding and digitization of explicit knowledge in books, documents, reports, papers, spreadsheets etc., is conveniently possible. It can be retrieved and transmitted easily. It is actually the tacit knowledge which creates explicit knowledge [46]. Knowledge Management enables organizations in managing customers by analyzing their data base which consist of information about their behavior, purchase preferences, trends etc. Use of digital platforms by employees to communicate and collaborate internally and externally makes the processes fast forward removing the delay in responses.

An inference can be made by going through the literature review that it is imperative for today's organizations to manage knowledge and information technology acts as a facilitator to it. With the help of IT tools organizations can convert the tacit knowledge into the explicit knowledge which will go waste otherwise.

Scope of Study:

This study was conducted in a professional institute running UG and PG courses with a small sample size. Time was a limiting factor. With the privatization of education and education becoming a very demanding and volatile industry there is a need to conduct a study with a larger sample size which will increase the reliability of findings.

Research Objectives

- To ascertain the role of Information Technology in facilitating Knowledge Management in an educational setup.

Null Hypothesis

Keeping the above objectives in mind, following Null Hypothesis was framed

H₀: “Information Technology does not facilitate Knowledge Management in an educational setup”.

Alternate Hypothesis

H₁: “Information Technology significantly facilitates Knowledge Management in an educational setup”.

Research Methodology and Data Collection

In this study, primary data was collected using survey method. A structured questionnaire was designed for the purpose of data collection. A sample size of 60 respondents was selected working in a professional educational institute. Out of which 54 responded, thus showing a response of 90 percent. Sampling technique used was judgment and convenience.

Data Analysis and Interpretation

- Data in Figure-1 shows that out of 54 respondents, who participated in the study, 32 were academic staff members, 14 were from non academic including staff from library, examination and staff responsible for maintaining the systems in the institute. Remaining 8 included members of institute administration.

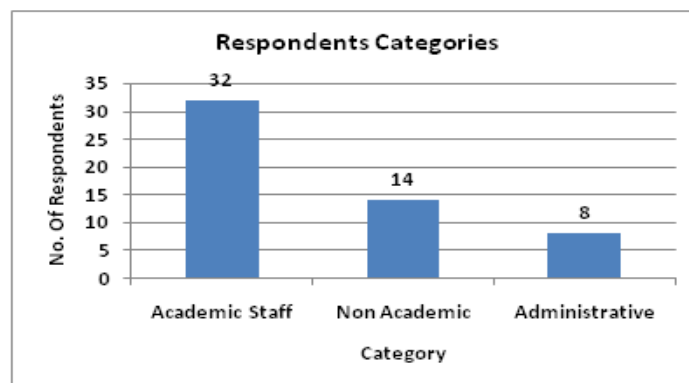


Figure-I

- Data in Table-I shows the responses of the respondents about their awareness of knowledge Management and its importance in an educational setup.

Responses Respondents ↓ →	Yes	No
Academic	28	4
Non Academic	8	6
Administrative	6	2

Table-I

- Data in Table-II shows the responses of the respondents about having the knowledge management policy and system in place in the institute.

Responses Respondents ↓ →	Yes	No
Academic	29	3
Non Academic	10	4
Administrative	8	0

Table-II

- Data in Table-III shows the responses of the respondents about the encouragement they get in the institute for developing and sharing new knowledge among all

Responses Respondents ↓ →	Yes	No
Academic	30	2
Non Academic	11	3
Administrative	7	1

Table-III

- Data in Table-IV shows the responses of respondents to question whether the institute has a procedure for creating, capturing and acquisition of knowledge

Responses Respondents ↓ →	Yes	Can Not Say	No
Academic	28	3	1
Non Academic	9	2	3
Administrative	6	1	1

Table-IV

- Data in Table-V shows the reply of respondents to question that institute has a system in which all the academic staff is to made available their research work and course work for sharing purpose

Responses Respondents ↓ →	Yes	No
Academic	32	0
Non Academic	6	8
Administrative	8	0

Table-V

- Data in Table-VI shows the responses of the respondents to question that they happily share their research work and new knowledge gained with others

Responses Respondents ↓ →	Yes	No Response	No
Academic	21	9	2
Non Academic	5	4	5
Administrative	6	1	1

Table-VI

- Data in Table-VII shows the responses of the respondents to the question that Institute information system and information provided by it helps in resolving any issue which arises suddenly

Responses Respondents ↓ →	Yes	No
Academic	29	3
Non Academic	5	9
Administrative	7	1

Table-VII

- Data in Table-VIII shows the responses of the respondents about the significant role played by Information Technology in facilitating Knowledge Management process in the institute. Responses to this question became the basis for applying the statistical test. Calculation of the test is shown after the reference section

Responses Respondents ↓ →	Yes	No	Can Not Say
Academic	26	3	3
Non Academic	5	1	8
Administrative	6	1	1

Table VIII

Chi Square Test Result

$$\chi^2 = 13.56$$

Since the calculated value of χ^2 is much higher than the table value of χ^2 which means that the calculated value cannot be said to have arise just because of chance. It is significant. This means that the alternative hypothesis H_1 which “Information Technology significantly facilitate knowledge Management in an education setup” stand proved.

Finding and Suggestions

While analyzing data certain interesting facts emerged which are summarized as follows:

- Analysis of data in Table -I shows that almost 78 percentage of the respondents were aware about the concept of Knowledge Management and its importance for an institutional setup..
- Analysis of data in Table-II shows that almost 87 percentage of the respondents stated that they knew that the institute has a knowledge management policy in place.
- Analysis of data in Table-III shows that almost 88 percentage of the respondents agreed to the fact that they are encouraged for developing and sharing new knowledge among all
- Analysis of data in Table-IV shows that almost 79% of the respondents were aware that the institute has a procedure for creating, capturing and acquisition of knowledge, however a significant percentage (21%) shows there unawareness about it.
- Analysis of data in Table –V presents an interesting finding 85 percent of the respondent knew that the institute has a system in which all the academic staff is to make available their research work and course work for sharing purpose. However 15 percent of the respondent did not knew about it and all were from the non academic staff.
- Table-VI presents an interesting finding. On asking whether they happily share their research work and new knowledge gained with others almost 41% of the respondent either said NO or did not reply at all. This clearly shows that it is only the management pressure which is forcing academic and non academic staff in the institute to share their learning with one another and they are not doing it willingly which actually hinders the process of knowledge development and sharing in an institutional setup.
- On asking whether the Institute information system and information provided by it helps in resolving any issue which arises suddenly (Table-VII), it was found that the non academic staff is largely not able to find the required information from the system which indicates the problem of understanding the system in the non academic staff.

- Data in Table-VIII was used to test the hypothesis and the test results proves the significant role Information Technology plays in facilitating Knowledge Management

Conclusion

An important finding of the study was that people are not happy in sharing the knowledge they already have or have developed in due course of time. It was only because of the essentiality of the process and the pressure of the management that they shared their knowledge. It is a human psychology to hide the things but it also shows a concern that there is still a great need to make people realize the importance of knowledge sharing which is beneficial overall growth of all the stakeholders. This is only possible to achieve with the help of information technology application in the implementation of knowledge management in an institutional setup. Analysis of the data showed that still a sizeable number of people are there who do not understand the KM concept. This problem can be resolved by conducting the knowledge management training in the institute especially for the non academic staff and continuously evolving the KM system in the institute by taking a regular feedback from all the employees concerned.

In just no time knowledge management has grown from just a concept to an organizational necessity. Keeping pace with a knowledge driven environment has become a necessity for the organizations especially for the education sector. For an institute to survive; learning, unlearning and relearning is must and for this they need to bring changes in all the processes taking place in its system. It is an uphill task but can be conveniently achieved by the implementation of a knowledge management system. Knowledge Management enables an institute in developing a system capable of converting, storing and sharing information and knowledge and made them available as and when required for any problem resolution or in the research and development work which will benefit one and all.

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Calculation of Chi Square (on the basis of table-VII)

↓ Respondents	Opinion →			Total
	Yes	No	Can Not Say	
Academic	26	03	03	32
Non Academic	05	01	08	14
Administrative	06	01	01	8
Total	37	05	12	54

Respondents	OE	EF	$(O_{ij}-E_{ij})$	$\frac{(O_{ij}-E_{ij})^2}{E_{ij}}$	$(O_{ij}-E_{ij})^2/E_{ij}$
Academic (Y)	26	21.93	4.07	16.60	0.76
Academic (N)	3	2.96	0.04	0.00	0.00
Academic (C.N.Say)	3	7.11	-4.11	16.90	2.38
Non Academic (Y)	5	9.59	-4.59	21.09	2.20
Non Academic (N)	1	1.30	-0.30	0.09	0.07
Non Academic (C.N.Say)	8	3.11	4.89	23.90	7.68
Administrative (Y)	6	5.48	0.52	0.27	0.05
Administrative (N)	1	0.74	0.26	0.07	0.09

Administrative (C.N.Say)	1	1.78	-0.78	0.60	0.34
				Total	13.56

Degree of freedom = $(3-1) \times (3-1) = 2 * 2 = 4$

Level of significance = 5%

Table value of chi square at 4 degree of freedom = 9.49